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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,171	12/01/2003	Michael J. Haun	25398B	8839
22889	7590	02/07/2007		
OWENS CORNING 2790 COLUMBUS ROAD GRANVILLE, OH 43023			EXAMINER KEMMERLE III, RUSSELL J	
			ART UNIT	PAPER NUMBER
			1731	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/07/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/725,171	<b>Applicant(s)</b> HAUN, MICHAEL J.	
	<b>Examiner</b> Russell J. Kemmerle	<b>Art Unit</b> 1731	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-9, 14-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (Process design for the production of a ceramic-like body from recycled waste glass, J of Materials Science, Vol 17, pp 2164-2193, 1982) in view of Barrett (US Patent 4,341,566) and Simpson (US Patent 5,830,251).

Referring to Claim 1, Brown teaches crushing waste glass to form a glass powder, mixing the glass powder with an additive (notably a binder and water), forming the powder mixture into the desired shape, and firing the resulting piece to produce a product having ceramic-like properties (page 2165, last paragraph of the first column through the second column). Brown teaches that many sources of soda lime glasses can be used and achieved identical results (page 2166, first paragraph of section 3).

Brown does not specifically disclose using fiber glass waste as the starting material in the disclosed process as a source of soda lime glass, or that the glass-additives mixture is granulated prior to forming.

Barrett discloses one known composition of glass fibers is soda lime glass (see Col 1 lines 14-20).

Simpson discloses a method of making a ceramic tile from industrial waste which is first turned into a glass, then pulverized and formed into a ceramic part. Simpson

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discloses that the mixture of ceramic powder and additives are treated in a ball mill to form a free flowing granular feed (Col 11 lines 3-6).

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have utilized any waste source of soda lime glass, such as fiberglass waste, in the method taught by Brown since Brown discloses that the method achieves identical results with many different sources of soda lime glass, and since Barrett discloses that glass fibers can be a known source of soda lime glass. It would have been further obvious to have added a ball milling step of grinding the glass-additives mixture of Brown before forming as taught by Simpson, since it is known to assist in the pressing of the ceramic powder.

Referring to Claim 4, Brown further teaches reducing the waste glass to a particle size of less than 353 microns during the process(0.353 mm) (page 2166 section 3, first paragraph).

Referring to Claims 5 and 6, Brown and Barrett do not specifically disclose that the waste glass is reduced to a powder with a liquid (specifically water) added. Simpson ('251) further teaches reducing waste glass into a glass powder by ball milling the glass in water to reduce the particle size of the powder (Col 11 lines 1-3). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to reduce the particle size of the waste glass using a process involving the addition of liquid (specifically water) in the crushing step of Brown in order to achieve a reduced particle size. This would have been obvious because Simpson teaches that by

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ball milling the powder with water the particle size can be reduced at the same time as mixing the batch, which would reduce the total time and cost of preparing the batch.

Referring to Claim 7, Brown teaches reducing the waste glass by passing it twice through a jaw crusher, and twice through a steel disc mill (process where no liquid is added, i.e., without liquid) (page 2166 section 3, first paragraph).

Referring to Claims 8-10, Brown further teaches a composition of waste glass powder and an additive, specifically the additive being clay to act as a binder. Brown teaches many possible amounts of each material be used to form a ceramic article, but preferable uses approximately 10 wt% clay binder with the remainder (approximately 90 wt%) waste glass powder (page 2169, section 5 "conclusions" paragraph (a)).

Referring to claims 14 and 15, Brown and Barrett fail to disclose using an aqueous or nonaqueous organic binder. Simpson further teaches using an organic binder as an additive to a glass powder to improve the forming a ceramic product (Col 10 lines 47-55). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to use organic binders as an additive to the glass powder of Brown since Simpson teaches that organic binders can be used to increase green strength of a ceramic body, which would be desirable since it would lead to less deformation or breaking of pieces prior to firing.

Referring to Claims 16 and 17, Brown further teaches mixing the glass powder and a binder in a liquid (specifically water) (page 2168-2169 section 4.4).

Referring to Claim 18, Brown and Barrett fail to disclose mixing the glass powder and an additive with out a liquid added. Simpson further teaches a method of forming

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ceramic tiles from a glass powder where additives are mixed with the glass powder without a liquid being added during the mixing (Claim 17). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to mix the glass powder and additive of Brown without adding a liquid as taught by Simpson since Simpson teaches that the glass powder and additive can effectively be mixed without a liquid being added. This would have been obvious since if the mixture were to be used in a process that requires a dry powder (such as dry pressing) any liquid added would have to be removed, so mixing as a dry powder would reduce the amount of work required to make the piece.

Referring to Claim 19, Brown and Barrett fail to disclose drying the glass powder-additives mixture to form a free flowing granular powder. Simpson further teaches drying the glass powder-additives mixture (specifically in a spray drier) to form a free flowing granular powder (Col 11 lines 3-6). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to dry a liquid mixture of glass powder and additives with a liquid of Brown (for example, as discussed above in the rejection of claim 17) to form a free flowing granular powder (including by spray drying) as taught by Simpson since Simpson discloses that drying a liquid having a powder and additives produces a free flowing granular powder that is desirable for many ceramic body forming processes.

Referring to Claim 20, Brown further teaches the method of forming the glass powder mixture into the desired shape by pressing it (page 2169, section 4.5).

Referring to Claim 21, Brown discloses heating the pressed pieces to a temperature of 820°C to 940°C (Page 2179-2180, section 3.7).

Referring to Claim 22, Brown dries the pressed body either at ambient temperature or at 110°C (page 2169 section 4.6) before firing the piece at 820°C to 940°C (Page 2179-2180, section 3.7).

Referring to Claim 23, Brown further teaches that during the forming of the final fired piece, some degree of devitrification (i.e., crystallization) occurs (Page 2188-2190 section 3.2).

Referring to Claim 24, Brown further teaches that waste glass can be used to create ceramic tiles (page 2164 second column).

Referring to Claim 26, Brown and Barrett fail to specifically disclose applying a glaze to the ceramic product. Simpson further teaches forming a ceramic article from a glass powder, and applying a glaze to the surface of the piece either before or after the initial firing of the piece (Col 11 lines 9-18). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to apply a glaze as taught by Simpson to the ceramic part taught by Brown. This would have been obvious because, as Simpson discloses, applying a glaze to a ceramic part is well known in the art as a method of creating a desired surface on a ceramic piece.

Claims 11-13 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (Process design for the production of a ceramic-like body from recycled waste glass, J of Materials Science, Vol 17, pp 2164-2193, 1982) in view of Barrett and Simpson in further view of Lingart (5,792,524).

Referring to Claim 11 Brown, Barrett and Simpson fails to disclose using an inorganic colorant as an additive to the glass powder. Lingart teaches using an inorganic colorant (specifically an alkali metal oxide or an alkaline-earth metal oxide) to produce a final ceramic product with a desired color (Claims 16-19). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to add an inorganic colorant as taught by Lingart to the ceramic article taught by Brown in order to obtain a ceramic article having a desired color.

Referring to Claim 12, Brown Barrett and Simpson fails to disclose using coarse-sized particles to roughen a surface of the ceramic product. Lingart teaches adding a coarse particle as an additive such as wood sawdust which creates a rough porous surface on the ceramic product (Col 4 Lines 37-55). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to add a coarse particle such as saw dust as taught by Lingart to the ceramic article as taught by Brown in order to obtain a rough porous surface on the ceramic article.

Referring to Claim 13, Brown Barrett and Simpson fails to disclose using additives which will improve some property of the final ceramic product. Lingart discloses using additives which will improve some property of the final ceramic piece (for example thermal insulation) (Col 4 lines 37-40). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to add a material which will improve a property of the ceramic article taught by Brown, such as taught by Lingart of using additives to improve the thermal insulation of the ceramic article.



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Referring to Claim 25, Brown Barrett and Simpson fails to disclose a method of forming a ceramic product from a glass powder formed from waste glass where the final ceramic product has a smooth glossy surface. Lingart teaches a method of forming a ceramic product from a glass powder, where the final ceramic product has a smooth face which is substantially free from defects (Col 2 lines 60-66). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to create the ceramic article taught by Brown and having a smooth glossy face as taught by Lingart in order to obtain a ceramic article having a smooth face which could be desired for some applications.

#### ***Terminal Disclaimer***

The terminal disclaimer filed on 11 January 2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,340,650 has been reviewed and is accepted. The terminal disclaimer has been recorded.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 1-26 that Brown does not disclose the use of waste fiberglass or the granulating the glass-additives mixture step have been considered but are moot in view of the new ground(s) of rejection detailed above in the rejection of Claim 1.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell J. Kemmerle whose telephone number is 571-

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272-6509. The examiner can normally be reached on Monday through Friday, 8:30-4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RJK

  
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